WHAT IS CLAIMED IS:

1. Use of a pluripotent neural stem/progenitor cell to produce a neurogenic spectrum comprising:

isolating a single neurosphere from cultured normal or diseased brain stem/progenitor cells;

disrupting said neurosphere to release mRNA;

making cDNA by first strand synthesis of the mRNA;

amplifying said first strand synthesis cDNA;

analyzing the amplified first strand synthesis cDNA products for phenotype markers to categorize glial and neuronal phenotpe;

arranging cDNA libraries prepared from said amplified products according to state of neuron cell maturation;

subtractively comparing a selected pair of amplified cDNA libraries to identify differential transcripts; and

constructing a temporal spectrum of neural developmental gene transcript expression to reflect a neurogenesis profile.

2. A temporal gene transcript neurogenic spectrum produced by the method of claim 1.

3. A temporal neuromorphogenesis profile comprising a plurality of characterized clones isolated from neurosphere microclonal libraries wherein at least one neural developmental phenotype cell marker expressed from each clone during cell

differentiation portrays neurogenesis when arranged in order of amount of expressed phenotype cell marker relative to time of initial appearance.

4. The profile of claim 3 wherein the phenotype cell marker is a neuronal or glial cell lineage marker selected from the group consisting of β-actin, GFAP, tenascin, nestin, MAP-2 neurofilament, neurofilament-m and HuD.

5. The profile of claim 3 wherein the characterized clones are comprised of type I, type II or type III neural pluripotent cells.

6. A collection of clones represented by the temporal neurogenesis profile of claim 3.

7. The clones of claim 6 that are derived from early type I cells cultured from a neurosphere.

8. The clones of claim 6 that are derived from late type I cells cultured from a neurosphere.

9. The clones of claim 6 that are derived from type II cells cultured from a neurosphere.

10. The clones of claim 9 that are derived from type III cells cultured from a neurosphere.

11. A microclonal library originating from a single neural stem/progenitor cell neurosphere comprising a collection of clones each comprising within its genome an isolable polynucleotide segment encoding a polypeptide temporally associated with the developmental stage of said neurosphere.

12. A gene transcript spectrum comprising a temporal array of pluripotent neural stem/progenitor cell developmental gene transcripts wherein the spectrum is prepared by the following steps:

cultivating a neural stem/progenitor cell to produce a neurosphere;

disrupting said neurosphere and amplifying RNA of first selected cells comprising said neurosphere;

preparing a cDNA library from said amplified RNA;

subtractively comparing RNA transcripts from clones selected from cDNA libraries of different second selected cells to identify transcripts associated with identified developmental stages of neurogenesis; and

arranging the transcripts to correlate with phenotypic neural cell development to obtain a developmental gene transcript spectrum for the second selected cells.

13. The profile of claim 12 wherein the neural stem/progenitor cell is cultivated under conditions to produce a neurosphere comprised of early type I pluripotent stem/progenitor cells.

14. The method of claim 12 wherein the neural stem/progenitor cell is cultivated under conditions to produce a neurosphere or microclone comprised of late type II pluripotent stem/progenitor cells.

15. The profile of claim 12 wherein the neural stem/progenitor cell is cultivated under conditions to produce a neurosphere comprised of early type II or late type II pluripotent stem/progenitor cells.

16. The profile of claim 12 wherein the neural stem/progenitor cell is cultivated under conditions to produce a neurosphere comprised of early type III pluripotent stem/progenitor cells.

17. The profile of claim 12 wherein the temporal array is obtained by iterative arrangement of clones producing at least one selected developmental gene.

18. The profile of claim 17 wherein the developmental gene is selected from the group consisting of a notch/delta gene and a bHLH gene.

19. A collection of gene transcripts associated with early development of pluripotent type I neuron stem/progenitor cells obtained from human neurospheres, said transcripts characterized by:

expression only in early development type I neuron stem/progenitor cells; and,

distinct from housekeeping, phenotypic and developmental gene transcripts.

20. The collection of gene transcripts of claim 19 wherein the developmental gene transcripts are selected from the group of proteins consisting of β-actin, β-microglobulin, neuron specific enolase, Pax-6, tenascin, glial fibrillary acidic protein, neurofilament-M, nestin and microtubule associated protein 2.

21. The collection of gene transcripts of claim 19 wherein the developmental gene transcripts are selected from the group consisting of vimentin, 02A progenitor protein, L1 adhesion protein, A2B5, and β-III tubulin.

add D

Add E1